

June 13, 1944.

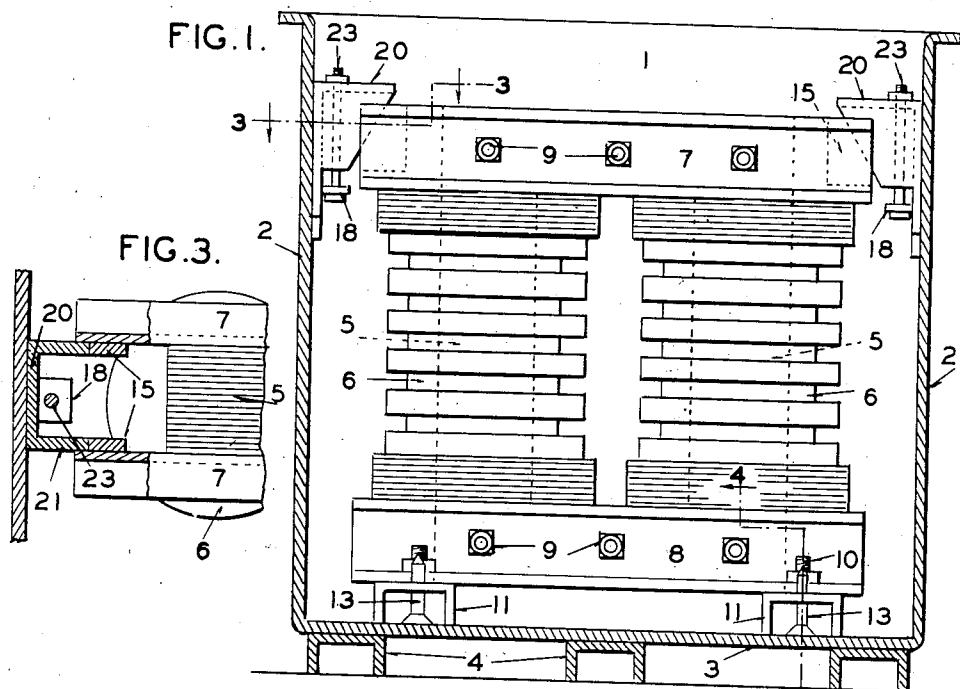
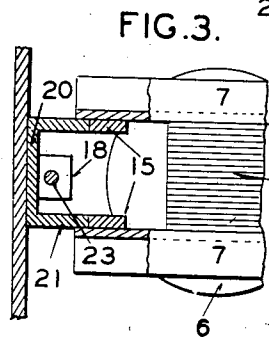
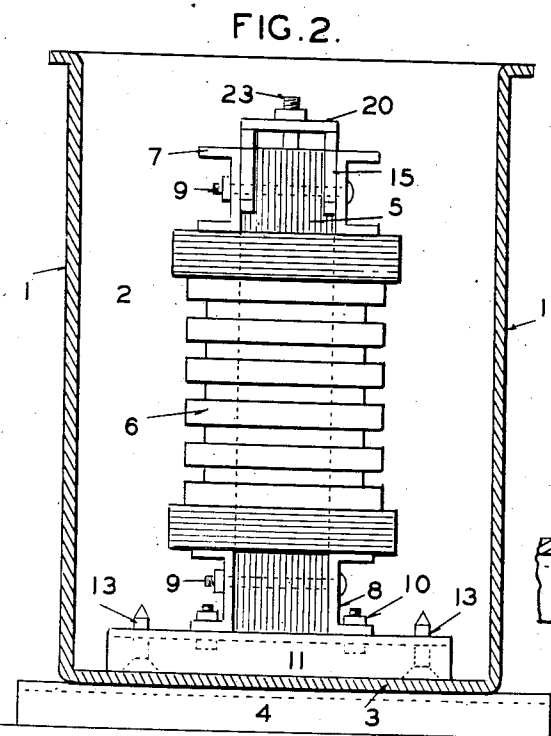
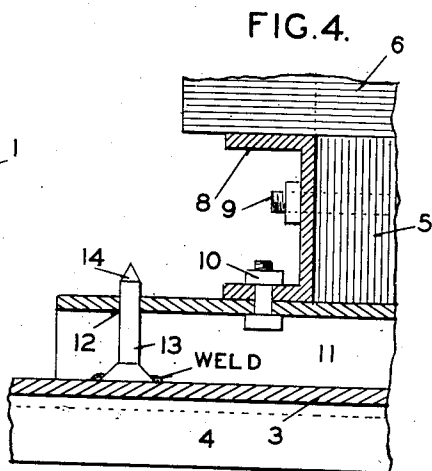
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2,351,097

TRANSFORMER ANCHORING MEANS

Filed Feb. 23, 1942

2 Sheets-Sheet 1



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FIG. 5

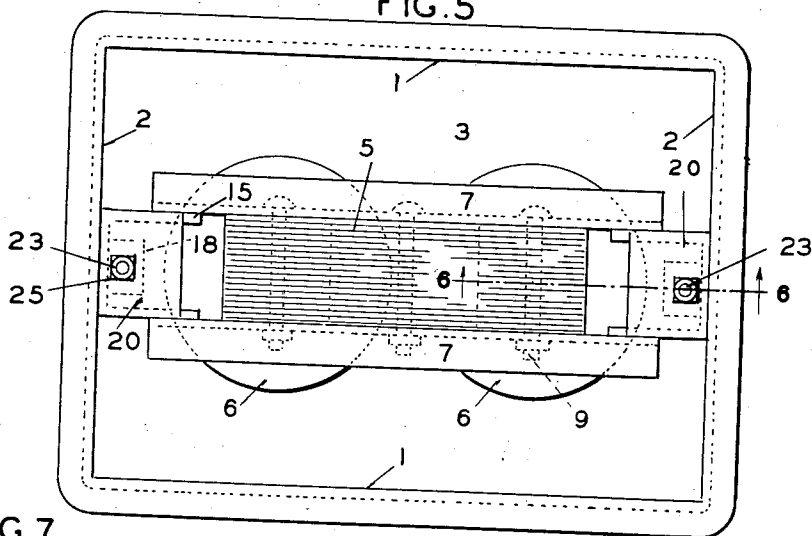


FIG. 7.

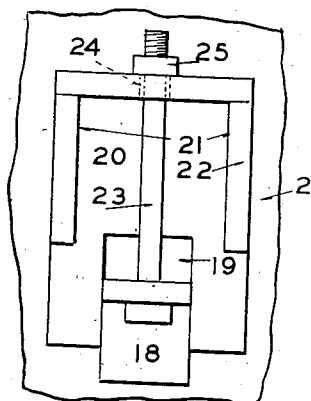


FIG. 9.

FIG. 6.

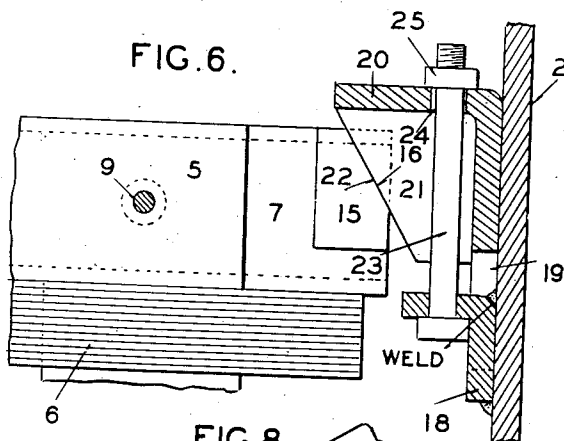
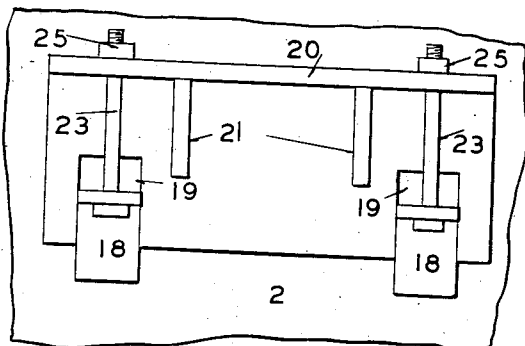
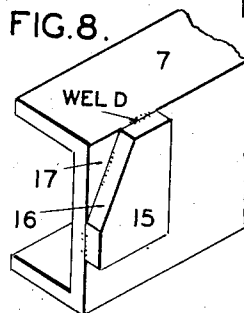


FIG. 8.



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UNITED STATES PATENT OFFICE

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TRANSFORMER ANCHORING MEANS

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2 Claims. (Cl. 175-361)

It has been found desirable to anchor transformers firmly in the cases or tanks in which they are contained. Heretofore this has usually been accomplished by angle irons bolted both to the tank walls and to some part of the transformer, such as the clamp plates or beams of the core. However, since the dimensions of both the transformer and tank vary appreciably, particularly in transformers of large size, such bolting must be done through slots or oversize holes to accommodate the variation in dimensions. This results in an anchorage depending on friction and it has been found that such frictional anchorage cannot be relied upon during shipment to prevent relative movement between the case and the transformer.

It is the object of the present invention to provide improved means for anchoring a transformer to its case, which means does not rely upon friction but provides a positive wedging action to prevent relative movement between the transformer and its case, either in a vertical or a horizontal plane.

In the accompanying drawings, which illustrate a transformer and case embodying my invention, Figure 1 is a side view, the case being shown in section; Figure 2 is an end view, the case being shown in section; Figure 3 is a section taken on the line 3-3 of Figure 1; Figure 4 is an enlarged section taken on the line 4-4 of Figure 1; Figure 5 is a top plan view; Figure 6 is an enlarged section taken on the line 6-6 of Figure 5; Figure 7 is an elevation of the brackets shown in Figure 6; Figure 8 is a perspective view of one end of one of the upper clamp plates; and Figure 9 is a view like Figure 7 but showing a modification.

The tank or case is made of metal in rectangular form and comprises side walls 1, end walls 2, and a bottom wall 3. The latter may be supported on cleats 4. The transformer consists of the usual rectangular core of laminated iron 5 and a pair of winding assemblies 6 applied to the legs thereof. The winding assemblies may be of any desired form and, therefore, not described in detail.

The laminae of the core are secured by upper and lower clamp plates 7 and 8, respectively. Each of these clamp plates is formed of two channel bars held by bolts 9 passing through the webs of the bars and the ends of the core projecting beyond the winding assemblies. Secured to the clamp plates 8 by bolts 10 are a pair of transverse supporting bars 11 formed of channel iron. Formed in the web of each of bars 11 near

either end is a hole 12 for the reception of a locating pin 13. These locating pins are each provided with a conical point 14 to facilitate their entry into holes 12 and are permanently secured to the bottom wall 3 of the tank, preferably by welding.

Permanently secured to the inner side of each channel member of the clamp plate 7 at either end thereof is a wedge block 15. This block has an inclined face 16 and is so located as to allow corner 17 of the clamp plate 7 to project beyond the face (Figure 8). Secured to each of the end walls 2 of the tank is a fixed bracket 18, preferably welded thereto. This bracket engages with a guide slot 19 in the lower edge of a sliding bracket 20. The bracket 20 is of such width as to fit between the members of the clamp plate 7 and is provided with end walls 21, the outer sides of which engage with projecting corners 17. The front faces 22 of these walls are beveled at the same angle as faces 16 of the wedge blocks and engage with them, as best shown in Figure 6. The fixed bracket carries a bolt 23 which passes through an opening 24 in the top of the bracket 20 and is engaged by a nut 25 by means of which the bracket may be forced downwardly.

In Figure 9 I have shown a modified form of sliding bracket which is particularly adapted for use on transformers of great width. This differs from the bracket above described only in projecting beyond the walls 21 and engaging with two fixed brackets instead of one.

The operation of my device is as follows. The transformer, including the core, winding assemblies, and upper and lower clamp plates has secured to the latter the supporting bars 11. It is then lowered into the case, holes 12 being matched with the locating pins 13. After this, the sliding brackets 20 are placed in position between the ends of the top clamp plate 7 with the inclined faces 22 in engagement with faces 16 of the wedge blocks. The nuts 25 are now tightened, forcing the brackets 20 downwardly. This pressure forces the whole transformer downwardly against the bottom of the tank and at the same time locates the upper part of the transformer properly between the end walls. Any tendency of the transformer to move laterally is effectively prevented by the engagement of projecting corners 17 of the clamp plates with the end walls 21 of the sliding brackets.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a device of the class described, a contain-

ing case, a transformer assembly including a core positioned in said case, a clamp plate comprising two bars separated by and extending beyond the core, a block carried by the inner side of each bar, each block being provided with an inclined face beyond which a corner of the bar projects, a fixed bracket carried by a wall of the case adjacent the end of the clamp plate, a movable bracket having interlocking sliding connection with the fixed bracket and positioned between the wall of the case and the clamp plate, said movable bracket engaging with the inclined faces of the blocks and with the projecting corners of the bars, and a threaded connecting member extending between the fixed and movable brackets for moving them relatively to impart a downward and transverse wedging action to the transformer assembly.

2. In a device of the class described, a containing case, a transformer assembly including a core

positioned in said case, a clamp plate comprising two bars separated by and extending beyond the core, a block carried by the inner side of each bar, each block being provided with an inclined face beyond which a corner of the bar projects, a fixed bracket carried by a wall of the case adjacent the end of the clamp plate, a movable bracket having interlocking sliding connection with the fixed bracket and positioned between the wall of the case and the clamp plate, said movable bracket including top and end walls, said end walls engaging with the projecting corners of the bars and having inclined faces engaging with the inclined faces of the blocks, and a threaded member extending between the end walls of the movable bracket and connecting its top wall with the fixed bracket, whereby downward and transverse wedging action may be applied to the transformer assembly.

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